

## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **LISTING OF CLAIMS:**

1. (Previously amended) A positionally addressable array comprising a plurality of different substances, selected from the group consisting of proteins, and molecules comprising functional domains of said proteins, on a solid support, with each different substance being at a different position on the solid support, wherein the plurality of different substances consists of at least 100 different substances per  $\text{cm}^2$ , wherein the plurality of proteins or molecules consists of at least 50% of all expressed proteins, or molecules comprising functional domains of said proteins, respectively, with the same type of biological activity in the genome of an organism.
2. (Original) The array of claim 1 wherein the plurality of different substances consists of between 100 and 1,000 different substances per  $\text{cm}^2$ .
3. (Original) The array of claim 1 wherein the plurality of different substances consists of between 1,000 and 10,000 different substances per  $\text{cm}^2$ .
4. (Original) The array of claim 1 wherein the plurality of different substances consists of between 10,000 and 100,000 different substances per  $\text{cm}^2$ .
5. (Original) The array of claim 1 wherein the plurality of different substances consists of between 100,000 and 1,000,000 different substances per  $\text{cm}^2$ .
6. (Original) The array of claim 1 wherein the plurality of different substances consists of between 1,000,000 and 10,000,000 different substances per  $\text{cm}^2$ .
7. (Original) The array of claim 1 wherein the plurality of different substances consists of between 10,000,000 and 25,000,000 different substances per  $\text{cm}^2$ .
8. (Original) The array of claim 1 wherein the plurality of different substances consists of at least 25,000,000 different substances per  $\text{cm}^2$ .
9. (Original) The array of claim 1 wherein the plurality of different substances consists of at least 10,000,000,000 different substances per  $\text{cm}^2$ .
10. (Original) The array of claim 1 wherein the plurality of different substances consists of at least 10,000,000,000,000 different substances per  $\text{cm}^2$ .
11. (Original) The array of claim 1 wherein the solid support is a glass slide.
12. (Original) The array of claim 1 wherein each different substance is present in a different well on the surface of the solid support.

13. (Original) The array of claim 12 wherein each different substance in a different well is bound to the surface of the solid support.
14. (Original) The array of claim 12 wherein each different substance in a different well is not bound to the surface of the solid support.
15. (Original) The array of claim 12 wherein each different substance in a different well is in solution.
16. (Original) The array of claim 12 wherein each well contains reagents for assaying biological activity of a protein or molecule.

Claims 17-92 (Canceled)

93. (Previously amended) A kit comprising:
  - (a) one or more arrays of claim 1 comprising a plurality of wells on the surface of a solid support wherein the density of the wells is at least 100 wells/cm<sup>2</sup>, wherein each of said different substances is present in a different well; and
  - (b) in one or more containers, one or more probes, reagents, or other second molecules.
94. (Original) The kit according to claim 93 wherein said one or more containers comprise a reagent useful for assaying biological activity of a protein.
95. (Original) The kit according to claim 93 wherein said one or more containers comprise a reagent useful for assaying interactions between a probe and a protein.
96. (Original) The kit according to claim 94 or 95 wherein the reagent is in solution.
97. (Original) The kit according to claim 94 or 95 wherein the reagent is in solid form.
98. (Original) The kit according to claim 94 or 95 wherein the reagent is contained in each well of the array.
99. (Original) The kit according to claim 94 or 95 wherein the reagent is contained in selected wells of the array.
100. (Previously amended) The kit according to claim 93 wherein said one or more containers contain a solution reaction mixture for assaying biological activity.
101. (Original) The kit according to claim 100 wherein said one or more containers contain one or more substrates to assay said biological activity.

Claims 102-105 (Canceled)

106. (Previously presented) The array of claim 1 wherein the solid support is composed of a silicone elastomeric material.

107. (Previously presented) The array of claim 106 wherein the silicone elastomeric material is polydimethylsiloxane.
108. (Previously presented) The kit of claim 93 wherein the plurality of proteins or molecules consists of at least 75% of all expressed proteins with the same type of biological activity in the genome of an organism.
109. (Previously presented) The kit of claim 93 wherein the plurality of proteins or molecules consists of at least 90% of all expressed proteins with the same type of biological activity in the genome of an organism.
110. (Previously presented) The kit of claim 93 wherein the organism is selected from the group consisting of a bacterium, yeast, insect, and mammal.

Claim 111 (Canceled)

112. (Previously presented) The kit of claim 93 wherein the solid support is selected from the group consisting of a ceramic, amorphous silicon carbide, castable oxide, polyimide, polymethylmethacrylate, polystyrene, and silicone elastomer.
113. (Previously presented) The kit of claim 112 wherein the solid support is a silicone elastomer.
114. (Previously presented) The kit of claim 112 wherein the solid support is a polydimethylsiloxane.
115. (Previously presented) The kit of claim 93 wherein the plurality of different substances are attached to the solid support via a 3-glycidoxypentyltrimethoxysilane linker.
116. (Previously presented) The kit of claim 93 wherein the density of the wells is between 100 and 1,000 wells/cm<sup>2</sup>.
117. (Previously presented) The kit of claim 93 wherein the density of the wells is between 1,000 and 10,000 wells/cm<sup>2</sup>.
118. (Previously presented) The kit of claim 93 wherein the density of the wells is between 10,000 and 100,000 wells/cm<sup>2</sup>.
119. (Previously presented) The kit of claim 93 wherein the density of the wells is between 100,000 and 1,000,000 wells/cm<sup>2</sup>.
120. (Previously presented) The kit of claim 93 wherein the density of the wells is between 1,000,000 and 10,000,000 wells/cm<sup>2</sup>.
121. (Previously presented) The kit of claim 93 wherein the density of the wells is between 10,000,000 and 25,000,000 wells/cm<sup>2</sup>.
122. (Previously presented) The kit of claim 93 wherein each different substance in a different well is bound to the surface of the solid support.

123. (Previously presented) The kit of claim 122 wherein each different substance in a different well is covalently bound to the surface of the solid support.
124. (Previously presented) The kit of claim 123 wherein each different substance in a different well is covalently bound to the surface of the solid support through a linker.
125. (Previously presented) The kit of claim 124 wherein the linker is 3-glycidoxypyrnyltrimethoxysilane.
126. (Previously presented) The kit of claim 122 wherein each different substance in a different well is non-covalently bound to the surface of the solid support.
127. (Previously presented) The kit of claim 93 wherein each different substance in a different well is free of binding to the surface of the solid support.
128. (Previously presented) The kit of claim 93 wherein each different substance in a different well is in solution.
129. (Previously presented) The kit of claim 93 wherein each well contains reagents for assaying biological activity.
130. (Previously presented) The kit of claim 93 wherein volumes of the wells are between 1 pl and 5  $\mu$ l.
131. (Previously presented) The kit of claim 93 wherein volumes of the wells are between 1 nl and 1  $\mu$ l.
132. (Previously presented) The kit of claim 93 wherein volumes of the wells are between 100 nl and 300 nl.
133. (Previously presented) The kit of claim 93 wherein the bottoms of the wells are square, round, V-shaped or U-shaped.
134. (Previously presented) The array of claim 1 wherein the plurality of proteins or molecules consists of at least 75% of all expressed proteins with the same type of biological activity in the genome of an organism.
135. (Previously presented) The array of claim 1 wherein the plurality of proteins or molecules consists of at least 90% of all expressed proteins with the same type of biological activity in the genome of an organism.
136. (Previously presented) The array of claim 1 wherein the organism is selected from the group consisting of a bacterium, yeast, insect, and mammal.

Claim 137 (Canceled)

138. (Previously presented) The array of claim 1 wherein the solid support is selected from the group consisting of a ceramic, amorphous silicon carbide, castable oxide, polyimide, polymethylmethacrylate, polystyrene, and silicone elastomer.
139. (Previously presented) The array of claim 1 wherein the solid support is a silicone elastomer.

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140. (Previously presented) The array of claim 139 wherein the solid support is a polydimethylsiloxane.
  141. (Previously presented) The array of claim 1 wherein the plurality of different substances are attached to the solid support via a 3-glycidoxypropyltrimethoxysilane linker.
  142. (Previously presented) The array of claim 12 wherein the density of the wells is between 100 and 1,000 wells/cm<sup>2</sup>.
  143. (Previously presented) The array of claim 12 wherein the density of the wells is between 1,000 and 10,000 wells/cm<sup>2</sup>.
  144. (Previously presented) The array of claim 12 wherein the density of the wells is between 10,000 and 100,000 wells/cm<sup>2</sup>.
  145. (Previously presented) The array of claim 12 wherein the density of the wells is between 100,000 and 1,000,000 wells/cm<sup>2</sup>.
  146. (Previously presented) The array of claim 12 wherein the density of the wells is between 1,000,000 and 10,000,000 wells/cm<sup>2</sup>.
  147. (Previously presented) The array of claim 12 wherein the density of the wells is between 10,000,000 and 25,000,000 wells/cm<sup>2</sup>.
  148. (Previously presented) The array of claim 12 wherein each different substance in a different well is bound to the surface of the solid support.
  149. (Previously presented) The array of claim 148 wherein each different substance in a different well is covalently bound to the surface of the solid support.
  150. (Previously presented) The array of claim 149 wherein each different substance in a different well is covalently bound to the surface of the solid support through a linker.
  151. (Previously presented) The array of claim 150 wherein the linker is 3-glycidoxypropyltrimethoxysilane.
  152. (Previously presented) The array of claim 148 wherein each different substance in a different well is non-covalently bound to the surface of the solid support.
  153. (Previously presented) The array of claim 12 wherein each different substance in a different well is free of binding to the surface of the solid support.
  154. (Previously presented) The array of claim 12 wherein each different substance in a different well is in solution.
  155. (Previously presented) The array of claim 12 wherein each well contains reagents for assaying biological activity.
  156. (Previously presented) The array of claim 12 wherein volumes of the wells are between 1 pl and 5  $\mu$ l.

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157. (Previously presented) The array of claim 12 wherein volumes of the wells are between 1 nl and 1  $\mu$ l.
  158. (Previously presented) The array of claim 12 wherein volumes of the wells are between 100 nl and 300 nl.
  159. (Previously presented) The array of claim 12 wherein the bottoms of the wells are square, round, V-shaped or U-shaped.
  160. (New) The kit as in any one of claims 93-101, 108-110, or 112-133, wherein said same type of biological activity is selected from the group consisting of kinase activity, phosphatase activity, protease activity, glycosidase activity, acetylase activity, group transferring activity, nucleic acid binding activity, hormone binding activity, and DNA binding activity.
  161. (New) The array as in any one of claims 1-16, 106-107, 134-136, or 138-159, wherein said same type of biological activity is selected from the group consisting of kinase activity, phosphatase activity, protease activity, glycosidase activity, acetylase activity, group transferring activity, nucleic acid binding activity, hormone binding activity, and DNA binding activity.
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